

CITY OF TORONTO
DEPARTMENT OF PUBLIC HEALTH

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"DENTURES FROM THE DIME STORE WILL NOT BE ENOUGH:"
THE DENTAL STATUS AND NEEDS OF SENIOR CITIZENS LIVING INDEPENDENTLY

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EXECUTIVE SUMMARY

Since no systematic or universal coverage exists to provide low or no cost dental service to those over age 65, the cost of dental care must usually be borne almost completely by the elderly person or his/her family. As a result, we have little information as to the overall dental health of seniors and their use of dental services.

This study was undertaken to:

1. determine the dental health status of the elderly, actual needs and perceived need for treatment;
2. assess the utilization of dental services by the elderly and
3. relate their ability in maintaining independence in life's activities to dental health status and utilization, in a sample of independently living seniors residing in the Eastern Health Area.

The maintenance of positive dental health in seniors is of considerable importance. The primary reason is that a senior whose chewing ability is impaired due to insufficient teeth or a problem with dentures may not eat properly. This may lead to poor dietary habits and an increase in the amount of softer foods eaten.

Also to be considered is the relationship between dental health and psychological well-being. Active oral rehabilitation can improve speech and appearance, both of which have an effect on the senior's self-esteem and morale. As a result, the senior is less likely to be isolated and will participate in a wider range of activities.

One significant barrier to positive dental health is finances. Seniors generally realize a reduction in income at age 65 when dental needs are probably most important. Therefore, they may avoid or reduce the amount of dental care utilized if their finances will not allow such expenditures.

This report outlines programmes which currently exist or will exist shortly to provide dental services to seniors. Some of these services are offered to eligible seniors on a low or no cost basis.

Participants in this study were chosen on the basis of a random selection of housing blocks in the Eastern Health Area. All residents on these blocks were asked if a senior lived at that

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address. If yes, the senior resident had the purpose of the study explained to him/her and consent was obtained. Later respondents were interviewed and their teeth examined in their own homes.

The results of the interview and examination indicate that a great many seniors required some dental care. Almost 50% of those surveyed had not seen a dentist in over six years and those who had seen a dentist went because of pain or for repair of teeth or dentures. A smaller number had seen their dentist for a regular check-up. Less than 50% of the sample had some natural teeth.

In a more detailed analysis, respondents were divided into "linsinc" and "non-linsinc" categories. Linsinc stands for low income seniors without insurance, while non-linsinc seniors were those with a higher income or those who had dental insurance but a low income. The Social Planning Council of Metropolitan Toronto's guidelines were used in determining income level. Linsinc seniors more often reported a longer time since they last received dental care, seeking dental treatment for relief of pain or teeth/denture repair, and a change to softer foods. The dental examination revealed that the linsinc group needed more periodontal care, more extractions and dentures.

The study concludes that there exists a relationship between income and dental health. Those requiring the most complex and expensive treatment were the least likely to afford it.

RECOMMENDATIONS

1. That the Department of Public Health ensure the provision of education, screening and referral for treatment to all seniors attending or living in collective living centres (CLC's).
2. That the Department of Public Health attempt to ensure a similar service for seniors not associated with CLC's, with special attention to the low-income, non-insured group.
3. That the Local Board of Health urge Metro Community Services (MCS) to collaborate with the Ontario Dental Association (ODA) to advise Metro Toronto member dentists regarding the MCS Dental Treatment Card, eligibility requirements and benefit levels.
4. That the EHA restrict its pilot no-charge basic treatment (including dentures) service to low-income non-insured seniors either not covered or inadequately covered by a MCS Dental Treatment Card.

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5. That the Department of Public Health discuss with the Ontario Dental Association (ODA) and component dental societies, a means of providing means tested, sliding fee scale dental treatment for seniors who can afford to pay something but not 100% of ODA guideline fees for dental treatment. This could include utilization of school dental clinics, mobile dental treatment units for non-mobile seniors, volunteer private dentist time with sessional honorariums being offered, and additional Department of Public Health funding as required.
6. That the Local Board of Health urge its Chairman to write to the provincial and federal Ministers of Health urging the development of a cost-shared comprehensive geriatric denticare program within the next 5 to 10 years.

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I INTRODUCTION

Currently, in Ontario, a senior citizen is eligible for publicly assisted old age pensions, drug benefits and health insurance. However, no systematic or universal coverage exists to provide low or no cost dental service to those over age 65. Therefore the cost of dental care must be almost universally borne by the elderly person or his/her family, with the exception of those few receiving municipally assisted dental care (i.e. general welfare recipients, residents of old age homes), or other dental insurance benefits.

The purpose of this research project was to

1. determine the dental health status of the elderly, actual need and perceived need for treatment,
2. assess the utilization of dental services by the elderly, and
3. relate their ability in maintaining independence in life's activities to dental health status and service utilization,

in a sample of independently living seniors residing in the Eastern Health Area.

The results of this research could have an impact on future social policies oriented toward maintaining the elderly in their own homes. We know that such seniors not only require less maintenance than those in an institutionalized setting (i.e. old age home), but also tend to be more active. Therefore, by delaying institutionalization, seniors are more likely to experience fewer emotional and physical health problems.

Related to the issue of institutionalization is the maintenance of positive oral health. A senior who has a reasonable ability to chew, is without pain and has no dental related speech impairment is more likely to experience a better quality of life. While dental care would be, for the most part, an indirect consideration in the decision to institutionalize an elderly person, it would certainly play a role in assessing the ability of the senior to be able to continue to live independently.

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II POSITIVE DENTAL HEALTH AND THE SENIOR

The aging process in general is usually associated with a deterioration of an individual's overall health status. Dental health is no exception to this process. It is for the following reasons that positive dental health in the elderly is so important.

A. Physical Well-Being

The primary disability a senior experiences with deteriorated dental health is the inability to chew food properly. This can affect not only total nutritional intake but also the variety of food the elderly person can consume.

The ability to chew is defined by the individual's current oral environment. For example, there may be an insufficient number of teeth, periodontal (gum) disease or chronic caries, or a need for new or better fitting dentures. Any one of these dental problems could have a subsequent impact on other areas of health, nutritional intake being the most salient point. Poor or inadequate nutrition, resulting from a diminished ability to chew, can lead to a senior being unable to adequately eat a well balanced diet. For example, firmer or hard foods may be too painful or awkward to eat. As a result the senior may change his/her diet to softer foods containing a large proportion of carbohydrates.

This situation is compounded for those on low and fixed incomes where it is unlikely that they can afford higher priced foods to increase variety. This may lead to the senior experiencing a lowered energy level which could precipitate a withdrawal from the community.

B. Psychological Well-Being

Recently, medical and social science professionals have recognized that psychological well-being is as important as the maintenance of physical health in the aging process.(1) Gerontologists are beginning to stress that many of the problems of aging are social and that a great deal of illness is psychological in origin.

While psychological problems in this age group are numerous, loneliness and social isolation tend to be major factors in the lives of the elderly. This isolation is often aggravated by the senior having to live on a fixed and generally inadequate income. The

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result is that the senior may withdraw to varying degrees from social intercourse. Rankin (1) states that "The loss of teeth or broken teeth may serve as the final straw in the development of this withdrawal syndrome. In part, it has been suggested that it may be the primary etiological factor in many cases." (pg.13). Therefore the active rehabilitation of the elderly person's dental problems can bring a marked improvement in morale and self-esteem.

C. Economic Constraints

One significant barrier to the elderly achieving positive dental health is finances. Not only does the senior generally realize a substantial reduction in earned income at age 65, but almost always loses benefits such as employer-subsidized dental plans.

Currently, a number of federal government and provincial government pension plans or assistance programs exist for seniors. The most prevalent are the Canada Pension Plan (CPP), Old Age Security (OAS), Guaranteed Income Supplement (GIS) and GAINS (Guaranteed Annual Income System), which is funded by the province. Of these programs, OAS is the only universal plan, while GIS and GAINS are designed to ensure that the senior's total income is maintained at a minimum standard. CPP being a contributory plan is only available to those who have made a minimum contribution (See Appendix A).

In comparing these income security programs to the poverty line established by the Social Planning Council of Metropolitan Toronto, all rates fall below the poverty level, with the exception of two married seniors receiving OAS and CPP. Especially low is the rate for the single senior who rents his/her accommodation. While other poverty standards exist, (i.e. Senate, National Council on Welfare), the Social Planning Council's line is the most comprehensive and is Toronto specific, which makes its guidelines most relevant.

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III EXISTING DENTAL PROGRAMS FOR SENIORS

A. The Health Protection and Promotion Act, 1983

Under the standards established in the new act, health units will be required to ensure that seniors attending a collective living centre (CLC) which is defined as a senior citizens apartment, drop in centre, home for the aged, nursing home, chronic care hospital, or chronic ward in an acute treatment hospital, receive

- a screening examination every two years for the purposes of referral and measurement of dental status;
- with the above screening examination
 - (a) mechanical plaque control
 - (b) cleaning and identification of prosthetic devices
 - (c) application of topical fluorides.
- along with staff of the CLC, at least one dental health education seminar annually.

B. Collective Living Centres

Seniors not living in their own homes have limited sources of dental care available. Those residing in a Metro Toronto Home for the Aged are eligible for geared to income care located in some homes. However, the senior must have the approval of the home's director and must be transported to the clinic to receive care.

Those living in a private nursing home or home for the aged must make their own arrangements unless their residence has arranged for a dental clinic. This, however, is subject to the policies established by the residence.

C. Metro Community Services Dental Basic Care Authorization Card

Limited assistance is available to seniors for dental care through Metro Community Services. A senior who receives the minimum non-contributory pension (OAS and GAINS), will have his/her dental costs paid for at a specified rate. Those earning more than the minimum

pension can apply to have all or part of their dental costs paid for according to dental need and individual circumstance. However, not all procedures are fully covered under this system.

D. Eastern Health Area's Dental Referral Network

Recently, a list of dentists and dental facilities who have agreed to modify their fee, and who speak a second language, are wheelchair accessible and/or treat the mentally disabled has been made available to social service agencies, doctors, senior citizen centres, etc. The senior still pays a fee for their dental care, but it is usually less than the Ontario Dental Association's guideline fee schedule.

E. Eastern Health Area's Geriatric Dental Program

This year, through the facilities of the EHA, a pilot dental program commenced with

- educational workshops given to personal health care workers in CLC's and to senior groups;
- basic no-charge dental care for low-income, uninsured independently living seniors, at the EHA office or a selected public school;
- no-charge dental examinations, referrals and oral hygiene instruction offered to seniors in CLC's by a dental team using a mobile dental unit.

IV METHODOLOGY

This project was conducted as a joint venture with the University of Toronto's Faculty of Dentistry, starting in June 1982. Dr. J. Leake was involved with the project throughout its various stages, as well as its presentation to the University's Ethics Committee. Dr. J. Williams was instrumental in the development and testing of the survey form.

A. Training of Personnel

Three dentists, enrolled in the University of Toronto's Faculty of Dentistry's program in Dental Public Health and one Chinese-speaking dentist from the Department of Public Health, conducted the dental examinations and

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administered the questionnaire. They were assisted by dental assistants/hygienists employed by the Department of Public Health.

Training of the examining dentists consisted of a half day session devoted to reviewing the clinical criteria, discussing clinical situations and obtaining agreement on the meaning of the terms. A second half-day session was spent with the dental teams and five patients who were interviewed and examined. Each team examined 3 patients and inconsistencies between the records were discussed and agreement obtained.

B. Derivation of the Sample

Since no listing of elderly residents in the EHA was available to the study, a map of the Area showing census tracts and block numbers was obtained. Every block in the Area was included in a unique numerical list. From this unique list, a random selection of blocks was made. For every block selected the next two blocks west were added to avoid the survey teams having to travel great distances. In case of duplication, where a selected block had been included in a previous clustering, the clustering was made west where possible and then in a north-south direction. In all, 33 selections were made, resulting in 99 blocks being drawn from the 611 available. The 99 blocks were located in 18 of the 30 census tracts found in the EHA, with as many as four selections being made in a census tract.

C. Enrollment of Respondents

A recently retired public health nurse was hired to begin the enrollment process in August 1982. She was instructed to begin at the 9 o'clock position of the first block selected and proceed clockwise around the block until she reached the point where she began. She was to approach every residence to determine if a person aged 65-85 resided there. If yes, she explained the purpose of the survey, handed the elderly person an information letter and solicited a consent to participate.

After the original consents had been obtained, the survey teams visited the residences to complete interviews and examinations among a total of 256 people. Forty-three (17%) of the 256 refused to be interviewed or examined.

D. Interview and Examination

The interview, which preceded the dental examination, included questions on the respondent's dental health and an assessment of the senior's dental health. The questions were a mixture of those developed by the EHA Dental Committee, which is a sub-committee of the Community Advisory Board, other questions used by other Metro Toronto health units and health departments, and the World Health Organization's Basic Oral Health Survey.

After the interview, the respondents underwent a brief dental examination. The only dental instruments used were hand held mirrors and light probes for the examination of the teeth and gums. No intrusive procedures were used. The respondent was informed as to the state of their dental health and questions were answered.

V RESULTS

The results found in this report provide a partial description of the seniors who were surveyed. However, more detailed tables are available to those who are interested.

A. Demographic Profile of Seniors Surveyed

The first four tables of this study provide some demographic background on those seniors who were sampled. In these tables, all 213 respondents have been included.

In Table I, the ages of the respondents are reported in 5-year intervals and are compared to the total number of seniors in the EHA.

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TABLE I

Age of Respondents in Comparison to Eastern Health Area Population

Age	Sample		EHA Population *	
	Total	(%)	Total	(%)
65-69	53	(24.5)	4,827	(1.1)
70-74	67	(31.5)	4,308	(1.5)
75-79	58	(27.2)	3,416	(1.7)
80-84	30	(14.1)	2,522	(1.2)
85+	5	(2.4)	2,246	(0.2)
	<u>213</u>	<u>(100)</u>	<u>17,061</u>	<u>(1.23)</u>

* 1981 census.

The two most numerous age groups are the 70-74 and 75-79 categories. The sample roughly corresponded to the relative numbers of seniors actually in these age categories.

Table II indicates the composition of the sample by sex and marital status. Overall, 25% more females than males were sampled. This corresponds to the actual over 65 sex ratio in the EHA. While the number of married respondents is fairly similar for males and females, a much larger percentage of women indicated that they were widowed or divorced.

TABLE II

Sex and Marital Status

	Males		Females	
	Total	(%)	Total	(%)
Single	9	(4.2)	8	(6.2)
Married	56	(26.3)	56	(43.0)
Widowed	17	(7.9)	65	(50.0)
Divorced	0	(0)	0	(0)
Unknown	1	(1)	1	(1)
Total	<u>83</u>	<u>(39.4)</u>	<u>130</u>	<u>(61.6)</u>

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The information in Table III lists respondent income for 1982. As can be seen, just under 50% of respondents reported a figure of less than \$8,000 per annum. If the respondent was married, both spouses' income was included.

TABLE III

Income of Respondent

	Total	(%)
Under \$4,000	18	(8.5)
4,000-5,999	55	(26.0)
6,000-7,999	32	(15.2)
8,000-9,999	17	(8.1)
10,000-12,999	11	(5.2)
13,000-14,999	12	(5.7)
15,000-19,999	15	(7.1)
Over 20,000	4	(1.9)
Refused/Unknown	49	(22.3)
	213	(100)

This figure would be consistent with a larger percentage of single seniors who had either not worked or worked for a very short period of time and were only receiving basic government assistance.

Table IV summarizes the living arrangements reported by the respondents. The majority indicated that they lived with their spouse or other family, while about 20% lived alone.

TABLE IV

Living Arrangements of Respondents

	Total	(%)
Lives Alone	42	(19.7)
With Spouse Only	78	(36.6)
With Other Family	74	(34.8)
With Non-relative of similar age	18	(8.5)
No Answer	1	(1)
	213	(100)

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B. Dental Status and Treatment Needs

Of the 213 seniors interviewed, 28.6% had seen a dentist in the past year while 46.1% had not seen a dentist for over 6 years. Of those who had seen a dentist within the last year, 57.8% went because something hurt, or to get something done, and 28.1% went for a regular check-up.

A brief summary of the overall dental status of those surveyed showed that

- 69.0% of the seniors, regardless of income, required some dental care.
- Of the 213 seniors surveyed only 104 were dentate (had some natural teeth). Of these, 69 required some treatment on their teeth. In total 223 teeth needed restoration and 108 teeth required extraction for various reasons.
- 109 out of the 213 seniors were totally edentulous (toothless). It was found that 36 new full and 59 partial dentures were needed while 46 full and 9 partial dentures needed repair or relining.
- 19 seniors were found to have conditions of the teeth or mouth tissues which required immediate attention due to pain, infection, or the possibility of a cancerous lesion.
- Of the 104 seniors who were dentate, 95.2% were in need of some form of periodontal treatment. Preventive services which included oral hygiene instruction, cleaning of teeth and fluoride therapy were required by 47 seniors. More complex periodontal treatment such as scaling the teeth above and below the gums, some gum surgery and possible extractions due to periodontal disease was needed by 51 seniors.

C. Dental Care

The following three tables indicate both who seniors go to for dental care and the source of funds. Table V lists the respondents' usual source of dental care. Clearly most seniors use a private dentist, while a small number use the services of a denture therapist.

TABLE V

Usual Source of Dental Care

Source	Total	(%)
Private Dentist	167	(78.4)
University Dental Clinic	4	(1.9)
Hospital Dental Clinic	4	(1.9)
Private Denturist	14	(6.6)
Other	5	(2.4)
Don't Know/No Answer	19	(8.9)
	<u>213</u>	<u>(100)</u>

Tables VI and VII record the respondents' source of payment for dental care received within the last year and the stated eligibility for dental benefits for those who did not receive dental care within the last year.

TABLE VI

Source of Funds for Dental Care
Received Within The Last Year

Source of Funds	Total	(%)
Self or Spouse	25	(46.3)
Family	19	(35.9)
Insurance	5	(9.2)
War Veterans	1	(1.8)
No Charge	4	(7.4)
	<u>54</u>	<u>(100)</u>

Only 11% of those who received dental care within the last year had it paid through some type of insurance or benefit. However, only 7% of those surveyed indicated they were eligible for dental benefits. Given the income levels recorded in Table III, it is likely that many of the low-income respondents were unaware of the availability of dental assistance through Metro Community Services.

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TABLE VII

Stated Eligibility For Dental Benefits

Eligibility	Total	(%)
Yes	15	(7.2)
No	187	(89.9)
Don't Know	6	(2.8)
	208*	(100)

* No response - 5

D. Analysis by Income and Insurance Coverage

In an effort to more clearly understand the relationship between income and dental health, the sample population was divided into linsinc and non-linsinc categories. 'Linsinc' stands for "Low Income Seniors Without Insurance", while 'Non-linsinc' seniors are those with a higher income or those who have insurance but may have a low income. Low income was defined as a yearly income of less than \$8,000 for single seniors and less than \$13,000 for a married couple. These figures were chosen in that they roughly corresponded to the poverty level established by the Social Planning Council of Metropolitan Toronto when this study was conducted.

Since 22% of the respondents either did not know their income or refused to provide it, they were not included in the analysis. As a result, 168 respondents (79%) were used in the analysis.

Table VIII records the respondents' living arrangements. Roughly the same number of linsinc and non-linsinc respondents lived alone. However, a larger percentage of non-linsinc seniors lived with a spouse while those in the linsinc group were more likely to have been living with another family member.

TABLE VIII

Living Arrangement by Income Status

Living Arrangement	Linsinc Total (%)		Non-Linsinc Total (%)	
Lives Alone	20	(17.4)	10	(19.2)
Spouse Only	38	(33.0)	25	(48.1)
With Other Family	47	(41.0)	11	(21.1)
With Non-relative of Similar Age	10	(8.6)	6	(11.6)
	115*	(100)	52	(100)

* One not reported

TABLE IX

Ethnic Affiliation by Income Status

Ethnic Affiliation	Linsinc Total (%)		Non-Linsinc Total (%)	
Canadian/British	61	(52.6)	44	(84.6)
Other European	24	(20.7)	7	(13.5)
Asian *	29	(25.0)	0	(0)
Other	2	(1.7)	1	(1.9)
	116	(100)	52	(100)

* Includes Chinese and Indochinese.

Table IX provides a break-down of respondents by ethnic affiliation. It should be noted that there were large percentages of other European and Asian in the linsinc category. These results may indicate a need to target special ethnic groups for dental care and the need for translation services for these groups if subsequent dental programs are developed.

In Table X, respondents were asked when they last received dental care. The linsinc group was more likely to report a longer period of time since their last dental visit than non-linsinc respondents.

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While 48% of the non-linsinc group sought dental care within the last year, 50% of the linsinc group had not received dental care in six or more years. These figures would be consistent with an ability to pay for dental services.

TABLE X

Reported Last Visit for Dental Care by Income Status

When Last Visit	Linsinc Total (%)		Non-Linsinc Total (%)	
Less Than 1 year	22	(19)	25	(48.0)
1 - 2 Years	6	(5.2)	4	(7.8)
3 - 5 Years	16	(13.8)	3	(5.7)
More Than 6 Years	58	(50.0)	16	(30.7)
Don't Know/Refused	8	(6.9)	2	(3.9)
Not Reported	6	(5.1)	2	(3.9)
	116	(100)	52	(100)

The next two tables XI and XII, indicate what type of dental care seniors received or why they did not seek dental care. Of the 49 respondents in Table XI who had seen a dentist in the previous year, non-linsinc seniors usually visited for a check-up or to have teeth cleaned, while linsinc went for the relief of pain.

TABLE XI

Reason For Seeing Dentist if Went Within
Last Year By Income Status

Reason	Linsinc Total (%)		Non-Linsinc Total (%)	
Check-up or Teeth Cleaning	7	(28)	11	(45.8)
Something Hurt	8	(32)	4	(16.6)
To Get Something Fixed	7	(28)	9	(37.5)
Other	3	(12)	0	(0)
	25	(100)	24	(100)

Those seniors in Table XII who had not seen a dentist in more than one year reported most often that there was nothing

wrong. However, over 25% of linsinc respondents reported fear, the inability to pay and the lack of teeth as the reason they did not seek dental care. The large percentage of linsinc individuals reporting "nothing wrong" may be attributable to embarrassment at having to report fear or inability to pay. Alternatively, seniors with few or no teeth may not perceive a difficulty in chewing as a dental problem and therefore report no 'problem'.

TABLE XII

Reason for Seeing a Dentist if Longer
Than One Year by Income Status

Reason	Linsinc Total (%)		Non-Linsinc Total (%)	
Nothing Wrong	62	(68.8)	23	(76.7)
Afraid	8	(8.9)	1	(3.3)
Can't Afford	13	(14.5)	0	(0)
No Teeth or False Teeth	4	(4.5)	0	(0)
Other	3	(3.3)	6	(20)
	90	(100)	30	(100)

When asked to judge their current oral state in Table XIII, again most indicated no problem, although a smaller percentage of linsinc seniors reported in this category. It is interesting to note, however, that almost 20% of the linsinc group had problems with dentures while fewer than 6% of the non-linsinc group reported denture problems. This is consistent with actual dental health findings reported later.

In Table XIV, linsinc respondents who had an identified dental problem were more likely to have had the problem for more than three months. If seniors were unable to afford dental care, it would be more likely that they would delay a trip to the dentist.

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TABLE XIII

Perception of Current Dental
Health by Income Status

Problem	Linsinc		Non-Linsinc	
	Total	(%)	Total	(%)
No Problem	68	(58.6)	37	(71.0)
Teeth Only	11	(9.5)	6	(11.5)
Gums Only	8	(7.1)	3	(5.7)
Teeth and Gums	5	(4.3)	2	(3.8)
Dentures	22	(19.0)	3	(5.7)
Other/Don't Know	2	(1.7)	1	(1.9)
	116	(100)	52	(100)

TABLE XIV

Perception of When Problem
Started by Income Status

When	Linsinc	Non-Linsinc
2 Weeks Ago or Less	2	3
2 Weeks - one Month	0	2
1 - 3 Months	5	1
More Than 3 Months	22	4
Don't Know	15	3
	44	13

In Tables XV, XVI and XVII, respondents had been asked to rate their ability to chew food and whether changes had occurred in their chewing ability. Table XV indicates that the chewing ability of the linsinc and non-linsinc seniors was similar. 16.6% of the linsinc group and 13.5% of the non-linsinc group had no difficulty chewing softer foods, while 83.4% and 86.5% respectively had no difficulty with firmer foods. This question, however, does not offer any insight as to how often the senior actually eats firmer foods. In fact, it is possible that seniors with poor dental health may find it difficult or uncomfortable to chew firmer foods and as a result avoid those foods.

TABLE XV

Chewing Ability by Income Status

Type of Food	Linsinc Total (%)	Non-Linsinc Total (%)
Softer**	19 (16.6)	7 (13.5)
Firmer***	95 (83.4)	45 (86.5)
	114* (100)	52 (100)

* 2 No answer

** Softer food means mashed potatoes, toast, roast meat

*** Firmer food means fresh salad, fresh apples or vegetables.

The figures in Table XV can be contrasted with those in Tables XVI and XVII where there was a substantial difference between linsinc and non-linsinc respondents reporting changes in their dental health.

TABLE XVI

Perception of Dental Health Change
Over Last Two Years by Income Status

Dental Status	Linsinc Total (%)	Non-Linsinc Total (%)
Deteriorated	42 (37.2)	9 (17.6)
Stayed the Same/Improved	71 (62.8)	42 (82.4)
	113* (100)	51* (100)

* 4 reported don't know
p < .05 (Chi square)

Linsinc respondents in Table XVI were significantly more likely to report a deterioration in their dental health while the non-linsinc reported no deterioration.

In Table XVII a larger proportion of linsinc seniors reported a change to softer foods than non-linsinc seniors. While this difference is not statistically different, it is consistent with actual dental findings.

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TABLE XVII

Perception of Whether Food Selection has Changed
over the Last Two Years by Income Status

Food Selection Change	Linsinc Total (%)	Non-Linsinc Total (%)
No Change or to Firmer Foods	87 (76.3)	46 (88.5)
To Softer Foods	27 (23.7)	6 (11.5)
	114* (100)	52 (100)

* 2 reported don't know

The final four tables summarize the results of the dental examination given to respondents. Table XVIII records the periodontal treatment needs of dentate seniors. While there was little difference between the number of linsinc and non-linsinc respondents in the less serious categories (oral hygiene instruction and prophylaxis), a greater proportion of linsinc respondents required periodontal therapy and extractions. These can be treated by a dental hygienist under the direct supervision of a dentist. The last two procedures are more complex and therefore are more expensive because they require the attention of a dentist.

TABLE XVIII

Periodontal Treatment Requirements
by Income Status

Treatment Requirements *	Linsinc	Non-Linsinc
None	1	2
Oral Hygiene Instruction (OHI)	7	4
Prophylaxis and OHI	14	10
Periodontal Therapy	23	11
Treatment with One or More Extraction	8	2
Full Extraction	1	0
	54	29

* Only respondents with teeth were included in this table.

Table XIX indicates the number of teeth needing restoration or extraction by income status. While linsinc and non-linsinc seniors requiring one and three surface restorations were roughly equal in proportion, there was a fair amount of difference in the other two surface categories. Linsinc respondents were more likely to need two surfaces restored while non-linsinc respondents needed more than three.

An examination of the extraction data reveals that those in the linsinc group required many more extractions. This would indicate that those in the linsinc group, who could not afford regular dental care, were more likely to have their teeth deteriorate to the point of extraction. While such factors as patterns of oral hygiene, nutrition, firmness of food eaten and dental history may all be contributing factors to this extraction rate, low-income seniors are clearly experiencing serious dental problems.

TABLE XIX

Treatment Requirements of Teeth by Income Status

Treatment Required	Linsinc		Non-Linsinc	
	Total	(%)	Total	(%)
Restorations	Number of Teeth			
1 Surface	59	(43.4)	31	(45.6)
2 Surfaces	35	(25.7)	5	(7.3)
3 Surfaces	25	(18.4)	15	(22.1)
3+ Surfaces or Crown	17	(12.5)	17	(25.0)
	136	(100)	68	(100)
Extractions	Number of Teeth			
Due to Caries	59		9	
Due to Periodontal Disease	33		0	
Due to Dentures	0		1	
	92		10	
	N=116		N=52	

The denture requirements of the respondents are outlined in Table XX. For the most part both linsinc and non-linsinc

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groups had more requirements for partial dentures than for full dentures. However, this table clearly demonstrates that linsinc respondents have higher requirements for new full dentures or repair/reline to existing ones. While this figure is probably due to the fact that there were more endentulous linsinc respondents than non-linsinc respondents, the cost of new dentures or their repair may be a barrier to the utilization of dental services.

TABLE XX

Denture Requirements by Income Status

Full Denture Requirements	Linsinc	Non-Linsinc
New Denture Required	21	1
Repair or Reline	35	4
Partial Denture Requirements	Linsinc	Non-Linsinc
New Denture Required	32	5
Repair or Reline	5	3
	N=116	N=52

Table XXI outlines periodontal findings by sextant, which refers to the gum area around 6 teeth in a row. The periodontal condition of each sextant is compared by the income status, according to a predefined code. Codes used to categorize the various states of health or disease of the gums are as follows:

1. "Healthy" refers to healthy gums that are firm, pink and with no signs of bleeding when probed.
2. "Bleeding" refers to gums that bleed when probed lightly. Bleeding of the gums is the first sign of periodontal disease and is called gingivitis. It is common and often ignored because it is painless. Daily, careful oral hygiene usually reverses this condition. Therefore, the group of seniors with this condition requires oral hygiene instruction which is usually given by a dental hygienist.
3. "Calculus" refers to a build-up and accumulation of plaque, calculus or tartar on, around and between the teeth and especially in pockets of the gum under the surface. If left untreated the calculus build-

up deepens the pockets progressively until the tooth is lost due to loss of bone support.

4. "Pocket 4-5mm" refers to pockets between the teeth and gums which measure 4 to 5 mm deep when lightly probed. These pockets can be treated by a dental hygienist, and dentist, usually by scaling the teeth. Gum surgery may also be required to restore health to the gums.
5. "Pockets 6mm" refers to pockets that have progressed to 6mm in depth when lightly probed. This depth of pocket occurs in the late stages of periodontal disease. The teeth are usually mobile and often require extraction. Only a dentist can treat such an advanced state of periodontal disease. Pocket therapy often requires multiple appointments and can be very costly. In many cases extraction of the teeth is the only treatment.

TABLE XXI

Periodontal Findings by Sextant

	L* NL*		L NL		L NL		L NL		L NL	
	Healthy		Bleeding		Calculus		Pocket 4-5mm		Pocket 6mm	
Upper & Lower Anterior	10	13	20	9	38	13	12	4	5	1
Upper R. & L. Posterior	4	6	9	11	19	9	29	7	1	0
Lower R. & L. Posterior	4	9	17	14	21	12	27	3	3	1
Number of Sextants	18	28	46	34	78	34	68	14	9	2
(%)	8.2	25	21	30.3	35.6	30.3	31.1	12.5	4.1	1.9

* Linsinc

** Non-Linsinc

Significantly more non-linsinc seniors had healthy gums. More non-linsinc had bleeding gums or gingivitis, but less advanced calculus or pockets. Deep pockets or advanced gum disease was much more prevalent in the linsinc group. 31.1% versus 12.5% for pocket 4-5mm and 4.1% versus 1.9% for pocket 6mm.

The linsinc group had advanced gum disease which required time-consuming and complex treatment by a dentist. This could

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explain why the periodontal disease in this linsinc group had advanced to the state where 33 teeth needed extraction in the group compared to no teeth requiring extraction in the non-linsinc group.

VI DISCUSSION

The results of this study indicate that the dental needs of many senior citizens are not currently being met. As well, there appears to be a strong relationship between dental health and the seniors' ability to pay for dental care. Those least able to afford dental services required the most complex and expensive treatment. Furthermore, those in the linsinc group were more likely to report a deterioration in their dental health and a change to softer foods. Because this generation of seniors lived through an age with no fluoride protection and no preventive dental education services, their oral hygiene was poor. This likely accounts for the fact that 95% needed some form of periodontal services.

The dental examination data conflicted with the seniors' perception that "nothing was wrong" with their teeth or gums. Reasons for this discrepancy can only be guessed. Perhaps these seniors have adapted to the unhealthy condition for so long that it is no longer considered a "problem". Some seniors may have thought of "problems" related only to teeth and not their dentures. Others may have been too embarrassed to admit that they couldn't afford treatment and answered instead that nothing was wrong. Regardless of the reason, most seniors need to be educated to recognize a healthy oral environment and to understand that many of their problems can be corrected. Education, examination and referral are clearly indicated as a high priority service in order to improve the dental health of seniors.

An examination of the ethnic affiliation of the seniors revealed that non-British Europeans, and especially Asians, were predominate in the linsinc group. Many of these immigrants do not qualify for CPP or OAS and live on very low incomes, usually with their families.

It has been mentioned that seniors or any low-income earner can apply to Metro Community Services for a Dental Basic Care Authorization Card, provided their income is below a minimum level. Those over the set income level may apply for partial funding of dental care. Utilization of this method of assistance is inadequate in that generally seniors who qualified for the grant were unaware of its existence.

Similarly, dentists questioned in the EHA did not seem to know of its existence (2).

The dental card allows for dental services at a set fee and the services allowed are limited. The fee set for dentures is so low that it barely covers the laboratory costs, and no fees are allowed for root-canal or molars. This often necessitates extraction rather than saving the molar tooth because of lack of funds. Seniors and low-income earners who are eligible for the grant assistance often have difficulty finding dentists to accept them for denture treatment. Another important point to mention is that 25% of the sample had incomes too high to qualify for the full card benefits, but were still below the poverty line. Although many of these seniors would qualify for a partial subsidy, even a modest \$100 fee for dental services would be a hardship with a fixed income of \$714.49 a month.

While no municipally funded scheme is suggested to provide free services for all seniors in Metro Toronto, there is a definite need to review the assistance program which may not be adequate for low-income seniors.

As the population surveyed in this study were seniors living independently, we can only speculate that seniors living in collective living centres would have comparable dental health needs. Currently, public health programs are directed at groups of seniors rather than individual seniors. This is due in part because of ease of administration and cost effectiveness. In order to provide seniors with a wider range of dental care options, services provided by public health should be promoted within the community.

VII RECOMMENDATIONS

1. That the Department of Public Health ensure the provision of education, screening and referral for treatment to all seniors attending or living in collective living centres (CLC's).
2. That the Department of Public Health attempt to ensure a similar service for seniors not associated with CLC's, with special attention to the low-income, non-insured group.

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3. That the Local Board of Health urge Metro Community Services (MCS) to collaborate with the Ontario Dental Association (ODA) to advise Metro Toronto member dentists regarding the MCS Dental Treatment Card, eligibility requirements and benefit levels.
4. That the EHA restrict its pilot no-charge basic treatment (including dentures) service to low-income non-insured seniors either not covered or inadequately covered by a MCS Dental Treatment Card.
5. That the Department of Public Health discuss with the Ontario Dental Association (ODA) and component dental societies, a means of providing means tested, sliding fee scale dental treatment for seniors who can afford to pay something but not 100% of ODA guideline fees for dental treatment. This could include utilization of school dental clinics, mobile dental treatment units for non-mobile seniors, volunteer private dentist time with sessional honorariums being offered, and additional Department of Public Health funding as required.
6. That the Local Board of Health urge its Chairman to write to the provincial and federal Ministers of Health urging the development of a cost-shared comprehensive geriatric denticare program within the next 5 to 10 years.

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APPENDIX A

Income Security Rates

Single Seniors

OAS/GIS/GAINS only (Maximum)

	Monthly Rate	Yearly Rate
OAS	\$256.67	\$3,080.04
GIS	257.68	3,092.16
GAINS	48.88	586.56
Total	<u>563.63</u>	<u>6,758.76</u>

OAS/GIS/ CPP

OAS	\$256.67	\$3,080.04
GIS	85.68	1,028.16
CPP	345.15	4,141.80
Total	<u>687.50</u>	<u>8,250.00</u>

Married Seniors (Total/Couple)

OAS/GIS/GAINS only (Maximum)

OAS	513.34	6,160.08
GIS	397.34	4,768.08
GAINS	160.78	1,929.36
Total	<u>1,071.46</u>	<u>12,857.52</u>

OAS/GIS/ CPP

OAS	513.34	6,160.08
GIS	26.67	640.08
CPP	690.30	8,283.60
Total	<u>1,230.31</u>	<u>15,083.76</u>

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REFERENCES

1. Rankin MP: Geriatric dentistry - a new look at an old problem. Ontario Dentist 1977; 54 : 13-14.
2. Hyduk S, Dental Supervisor, Department of Public Health, Eastern Health Area, Toronto, Ontario, October 5, 1983.

POOR

QUALITY

ORIGINAL